

REMARKS

Upon entry of the present amendment, claims 1-21 are pending in the application. Of these, claims 1, 11, 20 and 21 are independent. Claims 1, 11, 20, and 21 are amended herein.

Applicant respectfully submits that all the amendments are supported by the original application, and that no new matter has been introduced thereby.

The above-identified Office Action has been reviewed, the references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment is submitted. It is contended that by the present amendment and arguments, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

The applicant thanks the Examiner for her helpful remarks during the personal interview with the applicant's representative that took place on March 22, 2006. During the interview, claims 1-21 were discussed with respect to the cited prior art, and in particular, with respect to the disclosure of Glovatsky et al. (US 6,186,106). Arguments were presented against the rejection of claim 1. In particular, it was presented that Glovatsky does not disclose that the sandwiched electrically conductive material (ie, substrate 102) provides an electrical connection between cover and engine body, and Glovatsky does not show an electrically conductive gasket (applicant's Fig. 8) which is sandwiched between the shield cover and the engine body. In addition, an argument was presented against the rejection of claim 20 based on the fact that Glovatsky does not disclose or suggest an embodiment in which the air intake pipes are integrally formed within the cover (applicant's Fig. 10). The Examiner continued to maintain her rejections, and appeared to be unwilling to move away from her interpretation of the cited art unless the claims were further narrowed in scope, such as further defining the gasket 91 shown in

Fig. 8 or the tube 94R in Fig. 10 “formed integrally with the cover.” No agreement was reached.

Claim Rejections – Section 102 Issues

On page 2 of the Office Action, the Examiner rejected claims 1, 2, 8, 9, 20 and 21 under 35 USC 102(b) as anticipated by Glovatsky et al., US Pat. No. 6,186,106.

In the rejection, the Examiner states that Glovatsky discloses an intake plenum 50, and further discloses a plurality of electrically conductive parts 102, 104, 114, etc. disposed around the intake plenum 50 which are all covered with a one-piece shield cover 112 attached to the engine body in such a manner as to cover at least part of the intake plenum. The Examiner also notes Fig 10, stating that this figure shows a unitary shield cover 330, sized and shaped to cover all of the fuel injectors and injection coils (col. 7, lines 43-51), as well as cylinder bores (col 7, lines 1-17), the cover 330 inherently providing a cover which resists passage of external electromagnetic waves therethrough in order to protect the plurality of electric parts. The Examiner also states that the wording of claim 1 leaves open two alternative interpretations. That is, a first interpretation in which the electrically conductive material is located between the cover and the engine body, and a second interpretation in which the electrical conductive material provides a direct electrical connection between the cover and the engine body. The Examiner states that the limitations corresponding to both interpretations “may be present in” Glovatsky, but that at least the first interpretation is disclosed in which electrically conductive material is located between the shield and the engine body.

Applicant’s Response

Applicant respectfully disagrees with, and traverses, the rejection of these claims. The applicant finds that Glovatsky provides an apparatus for routing electrical signals in an engine.

The apparatus includes a flex substrate incorporating the electrical circuits, and a cover for the flex substrate. Both the substrate and cover overlie, and conform in shape with, a top surface of a manifold. The cover 112 is removably attachable to the upper surface of the intake manifold.

With respect to claim 1, although Glovatsky discloses a cover which covers at least part of the intake plenum, Glovatsky does not disclose that that electrically conductive material is sandwiched between the shield cover and the engine body *to provide an electrical connection between the shield cover and the engine body*, as claimed in claim 1 (and also claim 11). The applicant disagrees with the Examiner's assertion that the cover 330 disclosed by Glovatsky inherently resists passage of external electromagnetic waves therethrough, or that the cover 330 provides an electrical connection between the shield cover and the engine body, since Glovatsky discloses cover 330 to be preferably formed of plastic (col. 7, line 24), and as such provides no electrical shielding or conduction properties. Although the disclosure of first embodiment cover 112 recites that cover 112 may be formed of plastic, metal, fiberglass, or combinations thereof, Glovatsky does not disclose an electrical connection between the shield cover and the engine body, as claimed. In fact, Glovatsky is silent as to any discussion of electrical shielding, or providing protection from external electromagnetic radiation.

With respect the Examiner's remarks on page 7 of the Office Action in the Response to Arguments section, in which the Examiner states that even if the metal shield were not grounded by some sort of electrical connector between the shield and the engine, the device would function in the same manner. The applicant disagrees since an electrically conductive connection is not inherent to the disclosure of Glovatsky. Glovatsky states that the cover (112, 230, 330) is "removably attachable" to the surface of the intake manifold 50 (col. 4, lines 28-29; col. 5, line 33; col. 6, line 67), and the applicant respectfully asserts that it is known to provide plastic air

intake manifolds for engines (for example, the Examiner may wish to see <http://www.manufacturingtalk.com/news/rho/rho101.html>). In addition, as discussed above, Glovatsky discloses that the cover 112 may be formed of plastic, and the cover 330 is preferably formed of plastic. Therefore, in the absence of a positively recited structure which provides an electrical connection, electrical conduction between the cover and the intake manifold can not be presumed, much less such an electrical connection between the cover and the engine itself.

On page 7 of the Office Action, the Examiner further notes that the applicant has not stated that grounding the shield solves any stated problem or is for any particular purpose. The applicant disagrees since the applicant's disclosure clearly states that in the described engine, it is necessary to take countermeasures against electromagnetic waves and high voltage, and that the object of the invention is to provide an engine in which electric parts are shielded from electromagnetic waves using a single electromagnetic shield (paragraphs 2, and 5 - 7).

Thus, Glovatsky does not disclose electrically grounding the shield cover, and more specifically does not disclose the structural limitation describing the way in which the shield is grounded to the engine body, that is, of sandwiching an electrically conductive material between the shield cover and the engine body.

As regards claim 20, the applicant respectfully submits that Glovatsky does not disclose a one piece shield cover that interconnects the intake pipes of the intake manifold as claimed. All disclosed embodiments of Glovatsky provide an apparatus for routing signals which conforms in shape with a top surface of a manifold and is removably attachable to the upper surface of the intake manifold, but does not interconnect the intake pipes of the intake manifold. In contrast, the applicant claims a one piece shield cover that interconnects the intake pipes of the intake

manifold, as described in the specification at paragraphs 79-83 and shown in Fig. 10.

As regards claim 21, the applicant respectfully disagrees with this rejection, since Glovatsky does not anticipate the claimed invention. In particular, Glovatsky does not suggest or disclose an apparatus which includes a unitary shield cover comprising an electrical interference shield providing a barrier which resists passage of external electromagnetic waves therethrough, in order to protect said plurality of electric parts, as claimed. This feature is not disclosed or anticipated by Glovatsky, who does not even disclose an electrical grounding of the electronics routing apparatus cover 112, or by Glovatsky as modified by the prior art. Therefore, reconsideration and withdrawal of the rejection is requested.

However, in order to promote the prosecution of the application, the applicant has amended claims 1, 20 and 21 herein to recite that an electrically conductive gasket is provided between the cover and engine body, the gasket providing a direct electrical connection between the cover and the engine body. This feature is supported in the written description at paragraphs 75-76 and in Figs. 7 and 8. No new matter is added. Since the claimed electrically conductive gasket is not disclosed in the cited prior art, reconsideration and withdrawal of the rejection of claims 1, 20 and 21 are requested.

As regards claims 2, 8, and 9, which depend from claim 1, the applicant respectfully disagrees with the rejection of these claims for the reasons state above with respect to claim 1 as amended herein, from which claims 2, 8, and 9 depend. Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim Rejections – Section 103 Issues

On page 3 of the Office Action, the Examiner rejected claims 3-5 under 35 USC 103(a) as unpatentable over Glovatsky et al in view of Uchida, US Pat. No. 5,630,386. The Examiner states that Glovatsky discloses all the features except the shape and orientation of the runners of the manifold, but that Uchida discloses runners which comprise an arcuately curved intake pipe, and a rearwardly curving conning pipe having outwardly flared pickup ends.

Upon careful consideration applicant respectfully traverses these rejections for the reasons stated above with respect to the rejection of claim 1, from which claims 3-5 depend. The deficiencies of Glovatsky with respect to claim 1 are not cured by the teachings of Uchida.

Moreover, although the applicant agrees that Uchida discloses arcuately curved intake pipes 142, and also disclose connecting portions having outwardly flared pickup ends, the applicant respectfully disagrees that the connecting portions curve rearwardly within the plenum, as recited in applicant's claim 5. Uchida clearly shows connecting portions curving downwardly and inwardly toward the centerline of the engine, rather than rearwardly of the engine as claimed, in Fig. 2.

On page 3 of the Office Action, the Examiner rejected claim 6 under 35 USC 103(a) as unpatentable over Glovatsky et al in view of Uchida, and further in view of Brackett, US Pat. No. 5,560,327. The Examiner states that Glovatsky and Uchida disclose all claimed features except the configuration in which the cylinder bores are opposed and sandwich a crankshaft, which is supported on a crankcase and wherein the intake plenum is disposed above the crankcase, but that Brackett teaches that this configuration is old in the art.

The applicant respectfully submits that the deficiencies of Glovatsky with respect to

claim 1 as discussed above, and from which claim 6 depends, are not cured by the modification of Brackett. The applicant therefore requests reconsideration and withdrawal of this ground of rejection.

On page 4 of the Office Action, the Examiner rejected claim 7 as unpatentable over Glovatsky et al in view of Croft et al, US Pat. No. 3,814,069. The Examiner states that Glovatsky discloses all claimed features except a sensor for detecting a condition in the intake plenum extending from the control unit through a side wall into the intake plenum, but that Croft teaches that it is old in the art to employ a pressure sensor 29 extending through a sidewall into an intake plenum 12.

The applicant respectfully submits that the deficiencies of Glovatsky with respect to claim 1 as discussed above, and from which claim 7 depends, are not cured by the modification of Croft. In addition, the applicant disagrees that Croft discloses an electronic control unit attached to an outer face of a side wall of the intake plenum, as claimed. In particular, the figures of Croft show the control system in schematic form, with the implication that the control unit is located distantly with respect to the plenum housing. Because the combination of Glovatsky and Croft do not disclose or suggest all recited features, the applicant therefore requests reconsideration and withdrawal of this ground of rejection.

Also on page 5 of the Office Action, the Examiner rejected claim 10 as unpatentable over Glovatsky since the Examiner considers that it would be obvious to provide an air cleaner operatively connected to the throttle body since such a configuration is conventional in the engine art.

The applicant respectfully submits that the deficiencies of Glovatsky with respect to claim 1 as discussed above, and from which claim 10 depends, are not cured by the modification of Glovatsky to include an air cleaner. The applicant therefore requests reconsideration and withdrawal of this ground of rejection.

On page 5 of the Office Action, the Examiner rejected claims 11, 13, and 17-19 under 35 USC 103(a) as unpatentable over Glovatsky et al. in view of Brackett. The Examiner states that Glovatsky discloses all claimed features except a ground connector electrically connecting the shield cover to the engine body, the ground connector comprising an electrically conductive material sandwiched between the shield cover and the engine body, and the configuration in which the cylinder bores are opposed and sandwich a crankshaft, which is supported on a crankcase and wherein the intake plenum is disposed above the crankcase. The Examiner uses the disclosure of Brackett to teach that the configuration in which the cylinder bores are opposed and sandwich a crankshaft is old in the art. With respect to ground connector, the Examiner notes that Glovatsky discloses a cover that may be formed of metal (col. 4, lines 27-31), and that it would be likely to attach the metal cover to a conventional engine in an electrically conductive manner.

Applicant's Response

The applicant respectfully disagrees with this rejection. Glovatsky does not disclose electrically grounding the shield cover. Although the Examiner states that grounding a metal cover would be inherent, the applicant disagrees since such grounding could provide a short circuit with an electronic component 114 or circuit trace 108 form on an upper surface of the substrate 102 if the cover 112 were to come into contact therewith. Moreover, Glovatsky does

not disclose or suggest a structure which meets the claimed the structural limitation describing the way in which the shield is grounded to the engine body, that is, of sandwiching an electrically conductive material between the shield cover and the engine body.

The applicant further disagrees with this rejection since Glovatsky discloses attaching the cover to the surface of the intake manifold rather than to the engine itself. Because it is known to provide intake manifolds which are not formed of metal (see the discussion of the rejection of claim 1 above), it can not be presumed that an electrically conductive attachment is formed when the cover is secured to the surface of the manifold.

Because there are clear deficiencies between the Glovatsky disclosure and the features recited in claim 11, and because these deficiencies are not cured by the teaching of Brackett, the applicant respectfully traverses such rejections, and submits that claims 11, 13, and 17-19 are patentable over Glovatsky et al. and Brackett.

However, in order to promote the prosecution of the application, the applicant has amended claim 11 herein to recite that an electrically conductive gasket is provided between the cover and engine body, the gasket providing a direct electrical connection between the cover and the engine body. This feature is supported in the written description at paragraphs 75-76 and in Figs. 7 and 8. No new matter is added. Since the claimed electrically conductive gasket is not disclosed in the cited prior art, reconsideration and withdrawal of the rejection of claim 11 are requested.

As regards the rejections of claims 13 and 17-19, the applicant respectfully submits that the deficiencies of Glovatsky with respect to claim 11 as amended herein, and from which claims 13 and 17-19 depend, are not cured by the modification of Glovatsky to include the structure

disclosed by Brackett. The applicant therefore requests reconsideration and withdrawal of this ground of rejection.

On page 6 of the Office Action, the Examiner rejected claim 12 under 35 USC 103(a) as unpatentable over Glovatsky et al. in view of Brackett, and further in view of Croft et al.

The Examiner states that Glovatsky discloses all claimed features except a sensor for detecting a condition in the intake plenum extending from the control unit through a side wall into the intake plenum, but that Croft teach that it is old in the art to employ a pressure sensor 29 extending through a sidewall into an intake plenum 12.

The applicant respectfully submits that the deficiencies of Glovatsky with respect to claim 11 as amended herein, and from which claim 12 depends, are not cured by the modification of Croft. In addition, the applicant disagrees that Croft discloses an electronic control unit attached to an outer face of a side wall of the intake plenum, as claimed. In particular, the figures of Croft show the control system in schematic form, with the implication that the control unit is located distantly with respect to the plenum housing. Because the combination of Glovatsky and Croft do not disclose or suggest all recited features, the applicant therefore requests reconsideration and withdrawal of this ground of rejection.

On page 6 of the Office Action, the Examiner rejected claims 14-16 as unpatentable over Glovatsky et al. in view of Brackett, and further in view of Uchida. The Examiner states that Glovatsky, as modified by Brackett, discloses all the features except the shape and orientation of the runners of the manifold, but that Uchida discloses runners which comprise an arcuately curved intake pipe, and a rearwardly curving conning pipe having outwardly flared pickup ends.

Upon careful consideration applicant respectfully traverses these rejections, and submits that the deficiencies of Glovatsky as modified by Brackett with respect to claim 11 are not cured by the further modification by the teachings of Uchida. Thus, claims 14-16, which depend from claim 11, also avoid rejection.

Moreover, although the applicant agrees that Uchida discloses arcuately curved intake pipes 142, and also disclose connecting portions having outwardly flared pickup ends, the applicant respectfully disagrees that the connecting portions curve rearwardly within the plenum, as recited in applicant's claim 16. Uchida clearly shows connecting portions curving downwardly and inwardly toward the centerline of the engine , rather than rearwardly of the engine as claimed, in Fig. 2. Because the combination of Glovatsky, Brackett, and Uchida do not disclose or suggest all recited features, the applicant therefore requests reconsideration and withdrawal of this ground of rejection.

CONCLUSION

Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination.

Applicant requests reconsideration and withdrawal of the rejection of record, and allowance of the pending claims.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable consideration is respectfully requested.

Respectfully submitted,



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